Here come some answers in more detail.

1. "16 mips …seems very low. For CTB<75 we typically can not even reconstruct a vertex."

- Please make it clear why you can not reconstruct a vertex having 16 treks. Does it mean that random background in CTB is typically much higher than 16 treks? It looks better to start with 30 mip threshold.
- "Counting rate 80 hz saturate STAR bandwidth".

- If so, then one can set trigger threshold at 20 mips instead of 16 mips. Thus, we have a corresponding table as follows:

n1, n2	n_tpc	Z	Sigma, mb	f	N, c^-1
17 - 20	6	1	7	0	0
47 - 50	16	2.5	1×10^{-1}	0.3	30
57 - 60	20	3	4×10^{-2}	0.5	20
67 - 70	24	3.5	2×10^{-3}	0.7	1.5
77 - 80	26	4	4×10^{-4}	0.9	0.4
87 - 90	30	4.5	4×10^{-5}	1	0.04

Notations.

n1 – n2 are charged particles multiplicity interval. The corresponding partial cross section sigma is the sum over this interval.

n_tpc is multiplicity detected in CTB and TPC.

Z = n/<n>.

Sigma is a partial cross section summed in the interval n1 – n2. In the domain Z>3 exponential extrapolation is used.

f is trigger efficiency.

N is counting rate.

Now the counting rate is 50 hz. It can be more reduced if the trigger is set to, let's say, 24 mips.

2. "But this does not seem consistent with your statement that you expect 4000 events/day."

- Our statement is: "As a result, we hope to detect 4 x 10^3 events per day at Z=4.5 and n= 87 - 90, here Z is KNO variable Z=n/<n>. <n>=20 for charged particles at E_cms =200 GeV". So this number 4000 events/day is referred only to the last point in our table. Total statistics in the hole domain n>50 will be about 5×10^6.

3. "What other trigger conditions (in addition to CTB) would you include in trigger. … I'd guess that you could add in BBC."

- May be you are right, but it is difficult to evaluate effect of BBC without simulation. It may be dominated by diffraction events, but it is not a subject of this research. To know the loading of BBC and ZDC as a function of multiplicity is very important.

4. "Trigger may be dominated by multiple interaction per bunch crossing collisions."

- We have the trigger setting 20 mips or event multiplicity 60. Then the most dangerous is pile up of two events with multiplicity 27 – 30, which will simulate one event with multiplicity 60. Multiplicity n= 27 – 30 corresponds to partial cross section sigma = 2 mb. At luminosity 10^{30} the rate is 2×10^3 c^-1. Then probability of pile up is 10^-7 and counting rate of false events is less than 1 hz.

5. "One of the biggest omissions is the total number of triggers you need to do analysis".

- One of our task is to measure <p_t> at each multiplicity point with the accuracy higher then it was measured at FNAL in E735. They had an accuracy 2 – 5 %. Starting with this number we evaluated needed statistics 3000 events at each multiplicity point.

Best regards,

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